

Remarks

Upon entry of this amendment, Claims 17-27 and 29-33 are pending in the present application. Claims 17-28 were rejected in the pending Office Action.

Claim 28 is being canceled.

Claim 25 has been rewritten in independent form. New claims 32 and 33 depend from claim 25. Support for these new claims is found in the original claims and throughout the specification.

Claims 17 and 26 are being amended to put them into better form in accord with U.S. practice. Claim 17 is also amended, and new claims 29-31 are added, to define more particularly embodiments of compounds of formula (I) in regard to the group R^A.

No new matter is added.

Applicants reserve the right to pursue any canceled subject matter and any other matter supported by the specification.

Election/Restriction

The Examiner states that the claims are drawn to multiple inventions for reasons set forth in the restriction requirement, and examines them only to the extent that they read on the elected invention. The Examiner further states that cancellation of the non-elected subject matter is recommended, and that Applicants have to limit the definition of R⁵ to pyrido[3,2-b][1,4]thiazine ring.

Applicants respectfully submit that the present claims are directed to compounds wherein R⁵ is an optionally substituted pyrido[3,2-b][1,4]thiazine ring. The claimed definitions of X¹, X², X³, X⁵, Y¹ and Y² define each of the ring atoms in the positions shown in Examples 2-5, 9, 11 and 13 (which compounds are recited in claim 25). The claimed definitions of R¹³, R¹⁴, R¹⁵ and S(O)_x where x is 1 or 2 define the optional substituents on the corresponding ring atoms. The Examiner has previously stated in a telephonic interview of January 23, 2008 that the rings (a) and (b) may be optionally substituted. Indeed, this is consistent with each of the aforementioned Examples, which have an oxo substituent group on ring (b) (such a group is recited in claim 24). Stated another way, the claims define group R⁵ in which:

Ring (a) is optionally substituted pyrido defined by the ring atoms X¹ (C), X² (N), Y¹ (C-C wherein each C is substituted by R¹⁴), X³ (C) and X⁵ (C); and

Ring (b) is a non-aromatic ring defined by X³ (C), X⁵ (C), and Y² [which has 4 ring atoms defined by S bonded to X⁵ (wherein S is substituted by (O)_x in which x is

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0, 1 or 2), N bonded to X³ (wherein N is substituted by R¹³), and C-C (between the ring N and S, wherein each C is substituted by R¹⁴ and R¹⁵].

Thus Applicants respectfully submit that claim 17 is limited to a group R⁵ being an optionally substituted pyrido[3,2-b][1,4]thiazine ring. Reconsideration of the claims in view of these remarks is respectfully requested.

Specification:

Abstract:

The Examiner objects to the abstract of the disclosure because there is no nomenclature or chemical structure to describe the invention, requires correction and recommends insertion of the chemical structure and at least defining variable R⁴.

Applicants have amended the specification in accordance with the Examiner's suggestion.

Priority:

The Examiner advises an appropriate priority statement be inserted as the first sentence of the specification.

Applicants have amended the specification in accordance with the Examiner's suggestion.

Information Disclosure Statement

The Examiner acknowledges the IDS filed on 12/16/04 but states that the NPL reference and foreign patent documents are not considered because Applicants did not submit them. The Examiner further states that the NPL reference does not include a date.

Applicants respectfully submit that the patent documents referred to by the Examiner were previously provided to the patent office via the International Bureau and should have been considered. Nonetheless, in order to advance prosecution Applicants are resubmitting each of the references referred to by the Examiner. A new form PTO-1449 listing the references, including dates, is also submitted.

Applicants point out that a Supplemental Information Disclosure Statement is being submitted on the same date as this paper.

Double Patenting

Claims 17-28 are rejected on the ground of nonstatutory obviousness type double patenting as being unpatentable over claims 1-14 of US Patent 7,312,212; claims 1-7 and 10-16 of US Patent 7,109,213; and claims 1-13 of US Patent 7,205,408. The Examiner states that although the conflicting claims are not identical,

they are not patentably distinct from each other because there is significant overlap between the instant claims and the patented claims, respectively. In addition, the Examiner notes that claim 10 of US 7,312,212 recites a species which is the same as recited in instant claim 25. The Examiner has not identified with any particularity any other basis for the present rejection, but simply states that there is "significant overlap" between the instant claims and the patented claims.

Applicants have amended claim 25 to eliminate the overlap with claim 10 of US 7,312,212.

Applicants respectfully submit that the present claims do not overlap with the claims of any of the applied patents, for example in regard to the group R^A of the instant claims. None of the applied patents recite compounds corresponding to compounds of the instant invention, in which R^A is an optionally substituted bicyclic heterocyclic ring system selected from quinolin-4-yl, isoquinolin-5-yl, quinolin-8-yl, thieno[3,2-b]pyridin-7-yl, 2,3-dihydro-[1,4]dioxino[2,3-b]pyridin-8-yl, quinoxalin-5-yl, isoquinolin-8-yl, [1,6]-naphthyridin-4-yl, 1,2,3,4-tetrahydroquinoxalin-5-yl or 1,2-dihydroisoquinoline-8-yl, wherein when R^A is optionally substituted quinolin-4-yl, it is unsubstituted in the 6-position; or it is substituted by at least one hydroxy (C₁₋₆)alkyl, cyano or carboxy group at the 2-, 5-, 6-, 7- or 8-position.

For example, in contrast to the groups isoquinolin-5-yl, quinolin-8-yl, quinoxalin-5-yl, isoquinolin-8-yl, 1,2,3,4-tetrahydroquinoxalin-5-yl and 1,2-dihydroisoquinoline-8-yl, each of the applied references has a nitrogen in the para-position relative to the group -AB-, which is not present in those instantly claimed groups. The applied patent claims have a carbon in the ring position to which R¹ is attached, whereas in the instant [1,6]-naphthyridin-4-yl group the ring atom at this position is nitrogen. The groups thieno[3,2-b]pyridin-7-yl and 2,3-dihydro-[1,4]dioxino[2,3-b]pyridin-8-yl of the instant claims include a ring sulfur or oxygen in the bicyclic ring R^A, which is not embraced by any of the applied patent claims. With regard to the group quinolin-4-yl, the patented claims expressly exclude quinolin-4-yl which is unsubstituted in the 6-position (i.e. when none of Z¹⁻⁵ is N, then R¹ is not hydrogen), and do not embrace quinolin-4-yl substituted by at least one hydroxy (C₁₋₆)alkyl, cyano or carboxy group at the 2-, 5-, 6-, 7- or 8-position (i.e. the definition of R¹ and R^{1a} does not include hydroxy (C₁₋₆)alkyl, cyano or carboxy group except when Z⁵ is CR^{1a}).

In addition, the present claims do not overlap with the claims of US 7,109,213 in regard to the group R⁵ of the instant claims. The present claims have a non-aromatic ring (b), whereas in US 7,109,213 the corresponding ring is aromatic.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the double patenting rejections.

Rejection under 35 USC 112, 2nd paragraph

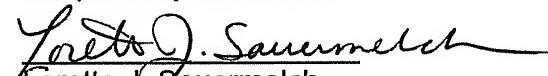
The Examiner rejects claims 17-23 and 26-28 under 35 USC 112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner asserts that the phrase "optionally substituted" is indefinite. More particularly, the Examiner states that in the absence of specific moieties to effectuate modification by the "substitution" or attachment to the chemical core claimed, the term "substituted" renders the claims in which it appears indefinite in all occurrences wherein applicants fail to articulate by chemical name, structural formula or sufficiently distinct functional language, the particular moieties applicants regard as those which will facilitate substitution, requisite to identifying the composition of matter claimed.

Applicants respectfully traverse. In all instances where the claims recite that a group may be "optionally substituted", Applicants have articulated in the claims the particular moieties which may be substituents. The substituents are set forth in the form of separate variables (e.g., R¹, R^{1a}, x in the context of S(O)_x, R¹³, R¹⁴, R¹⁵), and/or in a list of permissible groups. Applicants respectfully submit that the scope of the present claims is clear to one having ordinary skill in the art, and request reconsideration and withdrawal of the rejection.

Conclusion

All of the issues raised by the Examiner have been addressed and overcome. Reconsideration and withdrawal of the rejections and objections in the next Office Action is respectfully requested. If any issues remain to be resolved, the Examiner is cordially invited to contact the undersigned Attorney for Applicants at the telephone number provided.

Respectfully submitted,


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